

### **Remarks**

Claims 1-25 are pending in the present application and are rejected.

Claims 2, 15, and 20 are cancelled.

Claim 1 is amended to incorporate the limitations of claim 2. Claim 14 is amended to include the limitations of claim 15 with correction as noted by the Examiner. Claim 19 is amended to include the limitation of claim 20 with correction as noted by the Examiner. Claims 1, 14, and 19 are further amended to replace "measures the efficiency of the painting process" with "measures a combination of quality control parameters and paint transfer efficiency."

Claims 3, 4, and 5 are amended to depend from claim 1. Claims 4 and 21 are amended to insert "the" before "neural" in line 1, to replace "first neural layer defined by equation 1 to give a set of outputs  $a_i$ " with "first neural layer to give a set of outputs  $a_i$ ", to replace "second neural layer defined by equation 2 to give outputs O" with "second neural layer to give outputs O", and to delete labels "1" and "2." Claims 5, 16, and 25 are amended to remove the phrase "equation 4" and the label "4." Claim 16 is amended to depend from claim 14. Claim 21 is amended to depend from claim 19.

Claims 7-12 are amended to replace "thereof" with "of the above" as suggested by the Examiner.

#### **1. Claim Objections**

Each of the claim informalities noted by the Examiner are corrected.

**2. Claim Rejections Under 35 U.S.C. § 112**

Claims 4, 15 and 21 are rejected under 35 U.S.C. § 112, first paragraph, as filing to comply with the enablement requirement.

Applicant respectfully traverses the present rejection for the following reasons. The Examiner has incorrectly stated that claims 4, 15, and 21 are missing the parameter “ $\mu$ ” which the Examiner states is not defined. The present invention does not include such a parameter. Apparently, the Examiner has based this rejection on the reconstituted text based document generated by the Patent Office and not the Specification that was actually filed.

Claims 1, 14 and 19 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has amended claim 1 to include the limitations of claim 2, claim 14 to include the limitations of claim 15, and claim 19 to include the limitations of claim 20. Since claims 2, 15, and 20 are not rejected under 35 U.S.C. § 112, second paragraph, claims 1, 14, and 19 are now allowable.

Claims 1, 14 and 19 are also indefinite because it is not clear if “adjusting the one or more paint processing parameters” constitutes changing the values of inputs (real world or modeled) or changing the values of the weights in the neural network which pertain to those inputs.

Applicant has amended claim 1 to include the limitations of claim 2, claim 14 to include the limitations of claim 15, and claim 19 to include the limitations of claim 20. Since claims 2, 15, and 20 are not rejected under 35 U.S.C. § 112, second paragraph, claims 1, 14, and 19 are now allowable.

**3. Claims Rejections Under 35 U.S.C. § 101**

Claims 1-25 are rejected under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter.

Applicant respectfully traverses the present rejection for the following reasons.

The Examiner argues in support of the present rejection:

The claimed invention is not a practical application that produces a useful, concrete, and tangible result. The input "paint processing parameters" are openly defined in the specification, including "such as down draft (at the belt zone and reciprocator zone), air temperature, and air humidity, and average fluid flow rate the average film thickness on a particular surface of the vehicle body" (9), so the invention is not tied to one functional relationship between input and output. Furthermore, optimizing an optimization function by adjusting weights is a manipulation of an abstract concept absent any useful, concrete, and tangible result. Therefore, claims 1-25 are non-statutory.

Office Action dated March 10, 2006 (emphasis added)

Applicants have amended claims 1, 14, and 19 to clarify that the optimization function measures a combination of quality control parameters and paint transfer efficiency. Optimization of either or both of these quantities result in a useful, concrete, and tangible result – a better paint process. For example, optimization of paint transfer efficiency results in a paint process that utilizes a higher percentage of the input paint thereby resulting in less waste. Similarly, optimization of a quality control parameter such as thickness uniformity results in a more appealing painted product.

Accordingly, for at least these reasons, claims 1-25 are allowable under 35 U.S.C. § 101.

**4. Claim Rejections Under 35 U.S.C. § 102**

Claims 1-3, 6-8, 11-14, 19-20 and 22-24 are rejected under 35 U.S.C. § 102(e) as being anticipated by Shin (U.S. Patent No. 6,814,756).

Independent claims 1 and 19 are amended such that the paint optimization “measures a combination of quality control parameters and paint transfer efficiency.” Shin fails to disclose optimization of a function using a combination of quality control parameters and paint transfer efficiency. Moreover, Shin does not deal directly with paint transfer efficiency (i.e., the percent of paint that actually winds up in a coating). Instead, Shin deals with paint coating thickness.

Independent claim 14 is amended to include the limitations of claim 15 which is not rejected under 35 U.S.C. § 102(e). Therefore, claim 14 and its dependent claims are now allowable.

Accordingly, for at least this reason, claims 1-3, 6-8, 11-14, 19-20 and 22-24 are allowable under 35 U.S.C. § 102(e) over Shin.

**5. Claim Rejections Under 35 U.S.C. § 103**

Claims 9 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shin (U.S. Patent No. 6,814,756) as applied to claims 1-3, 6-8, 11-14, 19-20 and 22-24 above, and further in view of Rupieper (U.S. Publication No. 2002/0122033).

Claims 9 and 10 depend from claim 1 which is shown above to be allowable. Accordingly, claims 9 and 10 are allowable under 35 U.S.C. § 103(a) as being unpatentable over Shin as applied to claims 1-3, 6-8, 11-14, 19-20 and 22-24 above, and further in view of Rupieper.

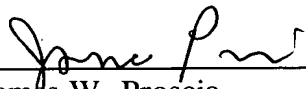
**Conclusion**

Applicant has made a genuine effort to respond to each of the Examiner's objections and rejections in advancing the prosecution of this case. Applicant believes that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any additional issues need to be resolved, the Examiner is invited to contact the undersigned at his earliest convenience.

Enclosed is a check in the amount of \$120.00 to cover the one-month extension of time. The Commissioner is authorized to charge any additional fees as a result of the filing of this paper to Ford Global Technologies, LLC's Deposit Account No. 06-1510 as authorized by the original transmittal letter in this case.

Respectfully submitted,

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